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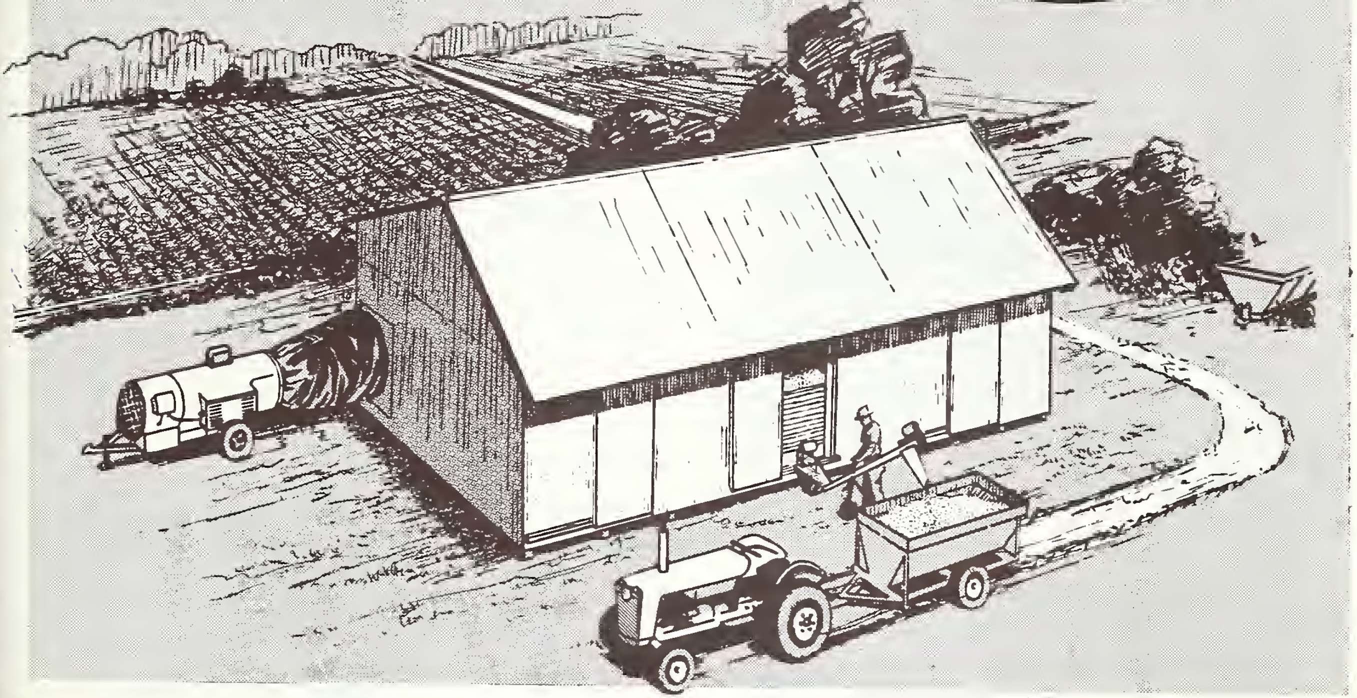
COOPERATIVE
FARM BUILDING

PLAN No. 5869
(3-SHEETS)

PLAN EXCHANGE

A DRYING AND STORAGE SHED

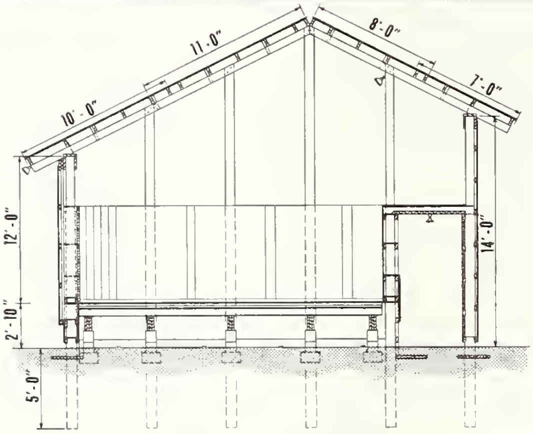


Corn, small grain, soybeans, seed crops, baled hay, and peanuts can be dried on the perforated floor in this building. The building may be adapted to handle wafered hay. The insulated main air-delivery tunnel, sealed to prevent air leakage, is large enough to handle 36,000 cubic feet of air per minute without any appreciable pressure drop. That is enough air for six 15 x 20-foot bins. The large tunnel is recommended to permit future expansion in the length of the building to double the capacity.

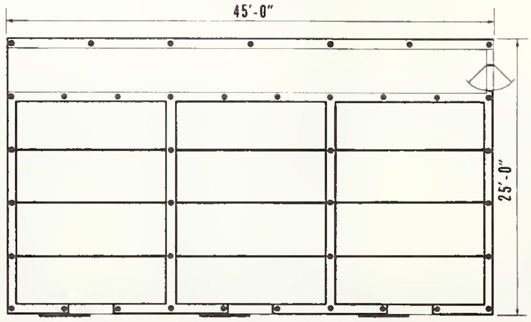
Slide gates can be set to meter the amount of air that passes from the main air tunnel to the space beneath the perforated floors of the bins. This feature permits the operator to deliver air according to the amount and moisture content of material in each bin.

A removable horizontal belt or auger is inserted on the centerline of the bins to facilitate unloading.

Belts are required for fragile material such as peanuts and hay wafers. When belts are used for small grain or seeds, a wiper strip is needed along the edges to prevent grain from riding beneath the belt. The motor powering the drag should be easily removable so it can be moved separately from the drag.



CROSS SECTION



PLAN

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Washington, D.C. March 1961

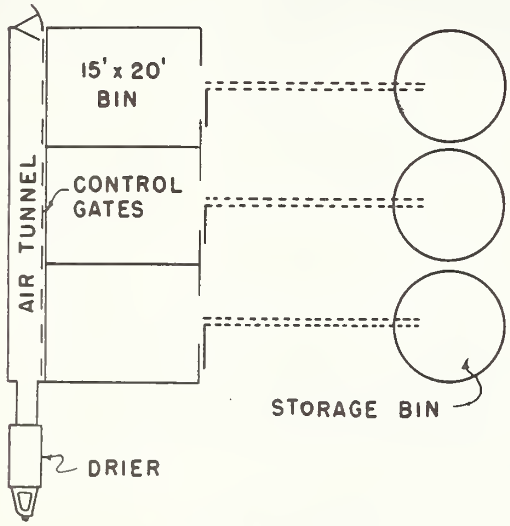
For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. — Price 5 cents

Cover boards over the top of the drag are removed gradually to give a continuous flow of grain or seed from the bin. This drag and a portable elevator or auger provide flexible, labor-saving handling of grain.

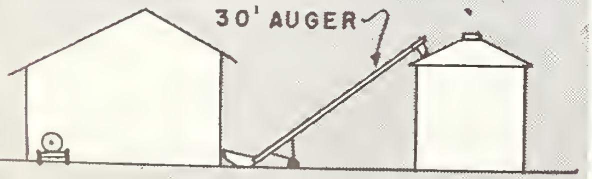
The box type of nailing girts, which carry the lateral pressures between poles set 5 feet on center, were tested at the Forest Products Laboratory in Madison, Wis. The 3/8-inch plywood covers on the girts and the nailing pattern shown for fastening the covers are designed with a safety factor of 2 when subjected to the pressures of bins level full of wheat.

Depths suggested for drying are:
- 3 feet for cereal grains or seed crops
- 6 feet for peanuts
- 5 bales deep for hay
- 8 feet deep for wafers or small bales at random.

The hay should be baled loosely, and the bales should be packed tightly against each other to direct air through the bales instead of around them. At the depths cited, the capacity load for drying is 640 bushels of grain per bin, 11 to 12 tons of peanuts, and 135 bales of hay.



PLAN



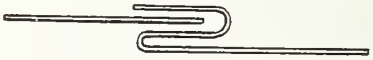
ELEVATION

The storage capacity of each bin is 1,280 bushels of small grain or shelled corn, 24 tons of peanuts if they are piled above the bin partitions, and 16 tons of hay stacked to the roof.

Many materials are adapted to the construction. The outer walls and roof may be sheet metal or other types of building sheets or boards. The interior lining of the bins may be tongue-and-grooved boards, plywood, corrugated steel, or any material having sufficient stiffness to resist bending between the nailing girts. The interior lining of the air tunnel must be made tight to hold air pressure. Large sheets of building material such as asbestos cement board, hardboard, plywood, insulating board, gypsum board, or sheet steel fastened with a Pittsburgh lap make good interior linings. All joints should be calked. The plenum area under the bins can be sealed with 55-pound roll roofing and asbestos cement board buried in the soil. A concrete rat shield at the bottom of the board is suggested to prevent rats from burrowing into the building.

The main entrance doors to the air tunnel are double—one on the outside for weather protection and one on the inside as an air seal. Sponge-rubber stripping about the doorstops forms a good seal when air pressure is applied to the door. The walkway above the air tunnel provides an ideal place for inspecting the material in the bins.

Electrical wiring is shown on the working drawings. Consult your power supplier before you build this drying shed. A 100-ampere service is suggested for three bins, and 200 amperes for six bins.



Pittsburgh lap is required if sheet steel is used for air tunnel lining.

Complete working drawings may be obtained through your county agent or from the Extension agricultural engineer at most State agricultural colleges. There is usually a small charge.

ORDER PLAN NO. 5869,
DRYING AND STORAGE SHED

If working drawings of this plan are not available in your State, write to the U.S. Department of Agriculture, Agricultural Engineering Research Division, Plant Industry Station, Beltsville, Md. The U.S. Department of Agriculture does not distribute drawings, but will direct you to a State that does distribute them.

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